

Two new wattles endemic to Victoria

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Abstract

Acacia sporadica and *A. aspera* subsp. *parviceps* are described as new. Both are Victorian endemics of restricted distribution. *Acacia sporadica* appears to be most closely related to *A. penninervis*, *A. caerulescens* and *A. obliquinervis*. Both new taxa are illustrated and notes on their distribution, ecology and conservation status are provided.

Introduction

In the course of preparing descriptions of *Acacia* for the *Flora of Victoria* (Entwistle *et al.* 1996), *Flora of Australia* (Maslin 2001a) and *Wattle, Acacias of Australia* (Maslin 2001), some taxa of uncertain affinities were identified. Subsequent examination and fieldwork has allowed two of these to be elucidated and they are described here as new.

Taxonomy

Acacia sporadica N.G. Walsh, *sp. nov.*

Acacia penninervis affine habitu minore saepe rhizomatoso, phyllodiis minoribus glaucis, floribus citrinis vere vel hieme factis et semine transversali differt.

Type: Victoria, Midlands, Carboor Upper, *N.G. Walsh 5583, A. Gibb, R. Leeton*, 26.vii.2002 (holotype: MEL; isotypes CANB, NSW, PERTH).

Acacia sp. C. Maslin, *Flora of Australia* : 11A: 253 (2001a); *Acacia* affin. *penninervis*. Maslin, *Wattle, Acacias of Australia* (2001).

Shrub to 3 m high, reproducing mainly by root suckers; branchlets glabrous, yellowish, terete or faintly ridged for the greater part, strongly angular on new season's growth. Phyllodes obovate to elliptic, 25–65 mm long, 8–32 mm wide, usually slightly asymmetric, glabrous, glaucous, obtuse, sometimes with a short (to c. 0.5 mm long) straight or uncinate apiculum; faintly to moderately prominently pinnately veined, the veins anastomosing toward the margin, midrib and marginal veins very prominent, yellowish; gland 5–20 mm above pulvinus, margin often shallowly indented at gland which is not obviously connected to midrib by a lateral vein. Racemes axillary, sometimes appearing paniculate on naked extremities of branchlets; rachis 15–70 mm long, glabrous, angular; peduncles 3–6 mm long, glabrous; heads globular, 5–8 mm diam., 15–25-flowered, bright lemon-yellow. Bractcoles peltate, c. 0.5 mm diam., pale to dark reddish-brown, minutely fimbriate. Flowers 5-merous; sepals united, the free portion c. 1 mm long, puberulent. Pods ±oblong, 40–90 mm long, 10–15 mm wide, rarely constricted between the (0–)3–9 seeds, thinly coriaceous; seeds transverse, oblong to elliptic, 4–5 mm long, slightly shiny, black, funicle pale brown, aril clavate, up to c. half as long as seed. Flowers July–Sept. (Fig. 1c, d)

Representative specimens examined (17 specimens examined): **Victoria:** South side of Howqua River, ca 5 miles [8 km] ESE of bridge on Mansfield – Jamieson Rd, *J.H. Willis s.n.* 16.iv.1976 (MEL); Fryers Range State Forest, 5 km W from Taradale, *N.G. Walsh 5581, E. & L. Perkins*, 26.viii.2002 (MEL); Carboor Upper, 15.5 km due SW from Myrtleford, *N.G. Walsh 5582, A. Gibb, R. Leeton*, 26.viii.2002.

This species has in the past either been included within *A. peminervis* (e.g. Entwisle *et al.* 1996) or treated as a distinct taxon related to *A. peminervis* (e.g. Maslin 2000, 2000a). It differs from *A. peminervis* in the smaller, often root-suckering growth-habit, the shorter, relatively broader, glaucous phyllodes with glands that are not connected to the midrib by a prominent vein, the bright yellow (rather than cream or nearly white) flowers that are produced in late winter to early spring (*A. peminervis* is principally a summer-flowered species), and the smaller seeds that are transverse (rather than longitudinal) in the pods. The nearest occurrence of *A. peminervis* to any of the *A. sporadica* populations is near Avenel, c. 100 km WSW from the Carboor population. *Acacia sporadica* also resembles *A. caernlesensis* Maslin & Court and *A. obliquinervia* Tindale. The former is a species of restricted distribution on limestone geology in East Gippsland and the latter widespread in montane areas of New South Wales, Australian Capital Territory and Victoria. Both are tall shrubs or small trees, often with pruinose branchlets, generally larger, more prominently asymmetric phyllodes with the gland clearly connected to the midrib by a vein. Both generally flower later in the year than *A. sporadica*.

Distribution and conservation status: *Acacia sporadica* is endemic in Victoria where it is known from only three small, widely separated populations, the largest of which near Carboor (c. 180 km north-east of Melbourne) extends over an area of c. 1.5 km x 0.5 km and includes perhaps 3000 plants. Some of these are clearly individual plants and some are parts of clones of up to 50 stems arising from an extensive rhizome system. There is a low level of seed production throughout this population. A population near Howqua (c. 140 km north-east of Melbourne) consists of 9 clones over an area of c. 250 m x 50 m, varying from c. 3 to 9 m diameter and each including up to c. 200 stems. All the 'plants' in this population appear to be functionally sterile (no seed production noted between 2000 and 2002). The third population near Taradale (c. 100 km north-west of Melbourne) consists of only 3 depauperate ramets, two of which are mature and only c. 15 cm apart, the third a non-flowering (in 2002) 'plant' c. 25 cm high and c. 5 m from the others. It is not known if these plants are separate individuals or are connected by rhizomes. There has been no confirmed seed set on plants in the Taradale population since their discovery in 1976 (E. Perkins pers. comm. 2002). There have been unsuccessful searches for more plants in similar habitat in the area around Taradale. The conservation status of *A. sporadica* is assessed at 2Vi (Briggs & Leigh 1996) or Vulnerable (VU sensu. IUCN 1994). No populations are represented within biological reserves. Some plants at the Howqua site were destroyed through roadworks during 2002. The Taradale population is clearly endangered.

Habitat: At each of the three sites *A. sporadica* occurs in grassy, dry eucalypt woodland or open forest, with *Eucalyptus goniocalyx* dominant or co-dominant (with *E. macrorhyncha* at both Taradale and Carboor, and *E. dives* at Howqua). At each site soils are shallow, derived from Ordovician (Fryers Ridge) or Silurian (Carboor, Howqua) sedimentary parent material. The tussock grass *Joycea pallida* is abundant at all three sites. Altitudes vary from c. 350 to 750 m a.s.l.

Notes: There are slight differences between plants from each of the 3 known areas of occurrence. Those at the Howqua site are smallest (mostly under 1 m high), with generally smaller, relatively narrower phyllodes and smaller inflorescences (raceme length typically under 40 mm). Plants near Taradale have very coriaceous phyllodes with the gland up to only 15 mm from the base of the phyllode (plants from other populations have the gland up to 22 mm from the phyllode base). Plants from Carboor are the only ones known to produce seed, and even here there is a very high level of abortion of developing seed.

The clonal, root-suckering habit of *A. sporadica* is of interest as another recently described species, *A. daviesii* Bartolome (Bartolome *et al.* 2002) also has a clonal habit, and is apparently confined to a few square kilometres less than 15 km from the Howqua



Figure 1. a, b *Acacia aspera* subsp. *parviceps*: a Habit $\times 1$, phyllode apex detail $\times 10$, peduncle detail $\times 20$ (N.G. Walsh 5219, MEL); b Pod $\times 2$, seed and attachment detail $\times 4$ (N.G. Walsh 5702, MEL); c, d *Acacia sporadica*: c Habit $\times 1$, gland detail $\times 5$, phyllode apex $\times 5$ (N.A.F. Gibb 1211, MEL); d Pod $\times 1$, seed and attachment detail $\times 2$. (N.A.F. Gibb 1212, MEL).

population of *A. sporadica*. Bartolome *et al.* (2002) demonstrated that ramets within a population were genetically identical, but there were genetic differences between most populations. It is not known if there is any genetic variation between the clones at Howqua, or the 3 ramets at Fryers Ridge sites, but it is assumed that plants produced from seed at Carboor will possess a degree of genetic variation.

It would appear that the 3 disjunct localities of *A. sporadica* represent remnant occurrences of a formerly more widespread distribution for *A. sporadica* or its ancestral taxon.

Etymology: The epithet refers to the widely scattered distribution.

Acacia aspera Lindl. subsp. *parviceps* N.G. Walsh subsp. *nov.*

A subspecies typica capitulis minoribus, floribus paucioribus compositis, bracteis brevioribus glandulosis differt.

Type: Victoria, Midlands, Brisbane Ranges National Park, extreme NE corner, *N.G. Walsh 5218*, 23.viii.2000 (holotype: MEL; isotypes CANB, NSW, PERTH).

Acacia aspera (Brisbane Range variant) Maslin, 'Wattle, Acacias of Australia' (2001); *Acacia* aff. *aspera* (Brisbane Ranges) J.H. Ross & N.G. Walsh, *Census Vasc. Pl. Victoria* cdn 7, 91, 124 (2003)

Spreading shrub to c. 1.5 m high; branchlets finely ribbed, becoming terete on older growth, hispidulous with a mixture of erect, gland-tipped and finer, usually shorter, eglandular hairs. Phyllodes oblong to narrowly obovate, 6–26 mm long, 2–4(–7) mm wide, usually strongly concavo-convex in section, rarely \pm flat, obtuse to rounded at apex, usually with a coarse apiculum to c. 1 mm long, inserted asymmetrically; midrib \pm central, lateral nerves oblique, often obscure and not clearly reaching margin; margin thickened, nerve-like, marginal gland apparently lacking; surfaces hispid with coarse, patent gland-tipped hairs to c. 0.5 mm long, mainly above midrib and near margins, intermixed with shorter finer patent hairs of variable density. Inflorescences simple, 1–2(–3) per axil; peduncles (7–)9–16 mm long, slender, hispid with only gland-tipped hairs, or with gland-tipped and shorter, finer, eglandular hairs in up to \pm equal proportions; heads globular, 4–6 mm diam. (on herbarium sheets), (15–) 24–35-flowered, cream to lemon-yellow. Bracteoles subulate, 0.5–0.8 mm long, shorter than buds immediately before anthesis, reddish-brown, hispidulous, gland-tipped. Flowers 5-merous; sepals united for most of their length, c. 0.8 mm long, hispidulous near base, resinous near apex. Pods \pm oblong or slightly curved, 15–35 mm long, 4–6 mm wide, biconvex, not or barely constricted between the 2–6 seeds, firmly chartaceous to thinly coriaceous, covered with spreading, multicellular, gland-tipped hairs to c. 1 mm long, often with a few shorter unicellular eglandular hairs; seeds longitudinal, oblong-elliptic, c. 4 mm long, 2.5 mm wide, shining dark brown, funicle/aryl terminal, sigmoid, basally thickened, yellowish, c. 1 mm long. Flowers July–Oct. (Fig. 1a, b)

Distinguished from subsp. *aspera* in the relatively long, slender peduncles with indumentum of gland-tipped hairs sometimes mixed with shorter eglandular hairs (subsp. *aspera* has stout peduncles to 10 mm long with sessile or subsessile glands and sometimes eglandular hairs, which when present, distinctly exceed the glands); the short, gland-tipped bracteoles subtending individual flowers in the heads (subsp. *aspera* has eglandular bracteoles clearly exceeding the buds immediately before anthesis giving the buds a characteristic burr-like appearance); generally pale lemon-coloured, few-flowered, smaller heads (subsp. *aspera* has bright golden yellow, 30–50-flowered heads, 6–9 mm diam. on herbarium sheets). The phyllodes of subsp. *parviceps* are pronouncedly concavo-convex in section whereas those of subsp. *aspera* are typically flat to slightly concavo-convex in section, and they are generally smaller than those of subsp. *aspera*, but there is some overlap in these characteristics.

Representative specimens examined (22 specimens examined): **Victoria:** Brisbane Ranges, between Bacehus Marsh and the Brisbane Ranges, *B.R. Maslin 3498*, 4.xi.1973 (MEL, PERTH); Brisbane Ranges, Mt Wallace-Bacehus Marsh Rd, *A.C. Beaglehole 56736*, 2.x.1977 (MEL); 4.5 km S of Beaufort, *A.C. Beaglehole 61680*, 19.xi.1978 (MEL); McHughes Rd, 5.5 km SW of Wedderburn, *J. Connock 339*, 30.viii.1992 (BRI, MEL); Werribee Gorge National Park, Ironbark Rd, *N.G. Walsh 5360*, 15.viii.2001 (CANB, MEL, NSW).

Distribution and conservation status: *Acacia aspera* subsp. *parviceps* is endemic in Victoria and is known from the northern part of the Brisbane Ranges and nearby Werribee Gorge area (c. 60 km WNW from Melbourne), Beaufort area (c. 140 km WNW from Melbourne), and near Wedderburn (c. 190 km NW from Melbourne). In the Brisbane Ranges and Beaufort areas plants are common to locally dominant in the lower shrub stratum. The Wedderburn population represented by *Connock 339* could not be relocated and the size is unknown. The taxon is well conserved in the Brisbane Ranges National Park, and nearby Werribee Gorge State Park. Its risk code is assessed as Rare (2Rca *sensu* Briggs & Leigh 1996) or Near Threatened (NT *sensu* IUCN 1994).

Acacia aspera subsp. *aspera* is a locally common and widespread species occurring in auriferous country in mid-western to north-eastern Victoria, extending northwards to the Australian Capital Territory and central New South Wales. It is not sympatric with subsp. *parviceps* at any known locality, but occurs as close as c. 40 km in a few localities (e.g. Avoca, Dunolly, St Arnaud, Stawell districts).

Habitat: *Acacia aspera* ssp. *parviceps* occurs on shallow soils derived from Ordovician sediments (shales, siltstones, sandstones), in dry to moist open forest typically dominated by combinations of *Eucalyptus goniocalyx*, *E. macrorhyncha*, *E. tricarpa* in the Brisbane Ranges, and *E. goniocalyx*, *E. melliodora*, *E. obliqua*, and *E. aromaphloia* south of Beaufort. At most sites in these areas the field layer is dominated by *Joycea pallida* with various low shrubs. There is no habitat information accompanying the Wedderburn specimen, but open forests of *Eucalyptus tricarpa*, *E. leucoxyton* and *E. microcarpa* are common in the area.

Notes: A few collections here referred to subsp. *parviceps* differ slightly from the form of the taxon in the Brisbane Ranges represented by the type. Plants south of Beaufort (e.g. *Beaglehole 61680*) and near Wedderburn (*Connock 339*) approach subsp. *aspera* in having slightly brighter, lemon-coloured heads on short (to c. 7 mm long) peduncles that are indumented by sessile or subsessile glands and longer eglandular hairs, but have head diameter and floral bracts typical of subsp. *parviceps*. Plants from the Werribee Gorge State Park (c. 10 km north of the nearest known population of subsp. *parviceps*) have relatively large, 30–50-flowered, bright yellow heads, long floral bracts and relatively large phyllodes typical of subsp. *aspera*, but with peduncles to 13 mm long with indumentum more typical of subsp. *parviceps* (i.e. with glandular hairs longer than eglandular hairs).

Etymology: The epithet of the new subspecies is from the Latin *parvus* (small), *-ceps* (headed) and refers to the flower heads that are smaller than those of the typical subspecies.

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